AUGUST 1980
No. 8

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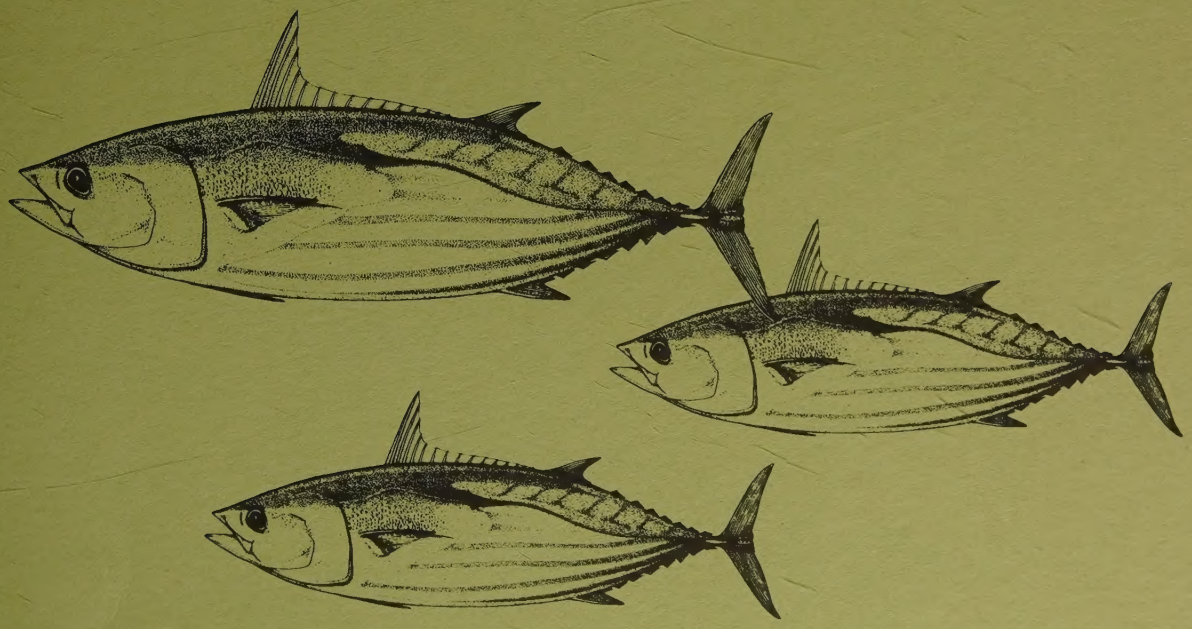

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FISHING INFORMATION

AUGUST 1980, No. 8

EDITOR: JAMES A. RENNER

I. Barrett, Director, SOUTHWEST FISHERIES CENTER
J. Carr, Deputy Director

PREFACE

This publication, Fishing Information, appears monthly and contains 1) fishery advisory information, 2) a narrative description of pertinent surface temperature conditions, 3) charts of winds and pressures for the eastern North Pacific, 4) charts of sea surface temperature for the North Pacific and eastern tropical Pacific, and 5) charts of subsurface temperature structure in the eastern North Pacific.

A supplement to Fishing Information appears at 15-day intervals throughout the year. It contains a chart of sea surface temperature (contoured at $2^{o}F$ ($1^{o}C$) intervals) from Baja California to Vancouver Island out to about $135^{o}W$. Special bulletins are published in conjunction with the 15-day sea surface temperature charts which include short-term projections of albacore distribution and locations of productive fishing areas, information on oceanographic and atmospheric conditions, and other information as is appropriate during the albacore fishing season.

NOTICE TO SUBSCRIBERS

Publication of FISHING INFORMATION and its 15-day supplements by the National Marine Fisheries Service will cease with the September 1980 issue. Beginning with the October issue, responsibility for the preparation of the types of charts currently published in Fishing Information will be transferred to the National Weather Service and the National Environmental Satellite Service. Scientists of the Fishing Information staff are currently working with National Weather Service and National Environmental Satellite Service personnel to ensure that the follow-on publication to Fishing Information meets user needs and that a smooth transition takes place.

We here at the National Marine Fisheries Service wish to thank you for your continued interest in, and support for, FISHING INFORMATION and urge you to lend similar support to the new National Weather Service/National Environmental Satellite Service publication.

To cancel delivery of this publication in the event you no longer need to receive it, or to change the delivery address if you are moving but still need to receive it, please notify us by writing: Editor, Fishing Information, National Marine Fisheries Service, Southwest Fisheries Center, P. O. Box 271, La Jolla, California 92038.

Submitted for publication - October 17, 1980

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ENVIRONMENTAL CHARTS ANALYZED BY:

F. Miller (Figures 8 and 9)
J. Renner (Figures 1, 2, 3, 4, 5, 6, 7, and 15-day Supplement)

TECHNICAL EDITOR:
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  National Ocean Survey, Pacific Marine Center, Seattle, Washington

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  J. Redhead at Langara Island Light
  H. Ewen at Cape St. James Light
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  M. V. Stewart at Amphitrite Point Light

Scripps Institution of Oceanography, La Jolla, California

Sea Surface Temperature and Environmental Conditions

Forrest R. Miller

Eastern North Pacific

During August, the subtropical high pressure cell is normally found near 37°N, 150°W. The Aleutian low pressure system is usually weak and remains north of 55°N and west of 170°W. The high pressure system normally produces northerly surface winds averaging 10 to 20 knots over the tuna fishing grounds off the U. S. west coast (Figure 1). Coastal upwelling and near-shore ocean temperature fronts persist along the coasts of Oregon, California, and Baja California. The coldest sea surface temperatures (SST) occur near the coast from 35°N to 45°N.

During August 1980, the subtropical high pressure center was near 42°N, 148°W, with central pressures 6 to 8 millibars above normal (Figure 2). A persistent, ridge of high pressure extended northeastward from the center over British Columbia and the state of Washington. The Aleutian low pressure system was weak and centered west of 170°E between 50°N and 60°N. As a result, the eastern Pacific high was the dominant surface weather system during August. This situation also prevailed during July 1980. For the past two months, strong northerly surface winds persisted for long periods along the eastern and southern periphery of the high pressure system. Strong surface winds occur frequently during most summer months off the coasts of Oregon and northern California, but monthly average wind speeds in August 1980 were significantly above the norm (compare Figures 1 and 2).

The SST pattern (Figure 5) continued to reflect seasonal warming everywhere except off the coast of northern California and southern Oregon, where coastal upwelling was fairly strong all month. East-to-west SST gradients (temperature edges) were more marked offshore from 35°N to 45°N in August than during previous months. A broad band of negative SST departures developed and persisted along the eastern and southern peripheries of the eastern Pacific high pressure system through July and August. More than 1°C below normal, they extended southwest from the west coast (Figure 5). In this zone, SST's failed to warm up at the seasonal rate because of extensive wind mixing off the coast and coastal upwelling. West of 140°W from 40°N to 50°N, above-normal SST's have developed and expanded in area since July, due, in part, to lighter winds and less cloud cover associated with the more northward position of the high pressure center. In addition, in those areas where SST's were more than 1°C above normal the westward displacement of a weak Aleutian low pressure system caused surface winds to be, on the average, slightly weaker than normal. The pattern of SST differences between August 1980 and August 1979 (Figure 7) was similar to the departures from the norm. However, the negative and positive SST differences between the two months were larger and more extensive. This resulted primarily from the position of the high pressure system and its dominance over the eastern Pacific during both July and August 1980.

Albacore tuna fishing during August was concentrated within two areas: 150 to 250 miles off southern California and 500 to 1000 miles west of the coast between northern Oregon and Vancouver Island. Seas were generally rough and reduced fishing effort off southern Oregon and northern California.

Western North Pacific

The western Pacific high pressure ridge remained weak and south of its normal position for August. The Aleutian low, centered near 60°N, 140°E on an average, was also weak most of the month. Therefore, there were no prolonged periods of high surface wind mixing of the ocean north of 40°N. As as result, the north Pacific Ocean front (Figure 4) was less pronounced than in June or July, except near the east coast of northern Japan and offshore along 40°N between 150°E and 160°E. In this area, the alternating patterns of above- and below- normal SST's (Figure 6) reflected the only zone where ocean currents and wind mixing maintained sharp frontal boundaries. South of 35°N and east of 150°E, seasonal warming was below normal. This was due, in part, to a weak high pressure system and frequent tropical storm activity moving northeastward from the tropical western Pacific. During August SST's were more than 1°C above normal over a large part of the tropics south of 25°N in the western Pacific. The very warm water and favorable upper atmosphere conditions were major contributors to the development of three or more severe tropical storms which recurved southeast of Japan out of the warm, tropical western Pacific.

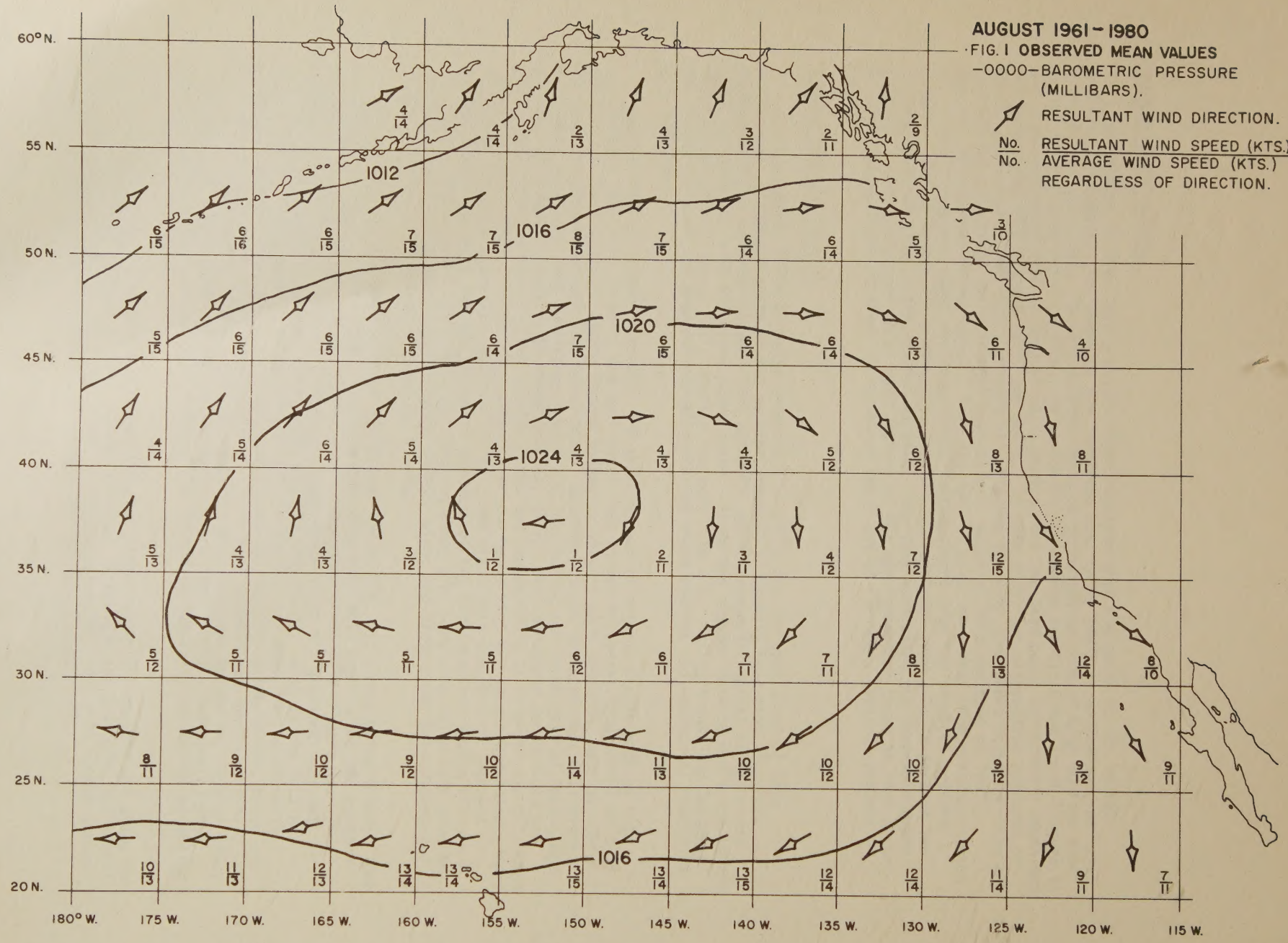
Eastern Tropical Pacific

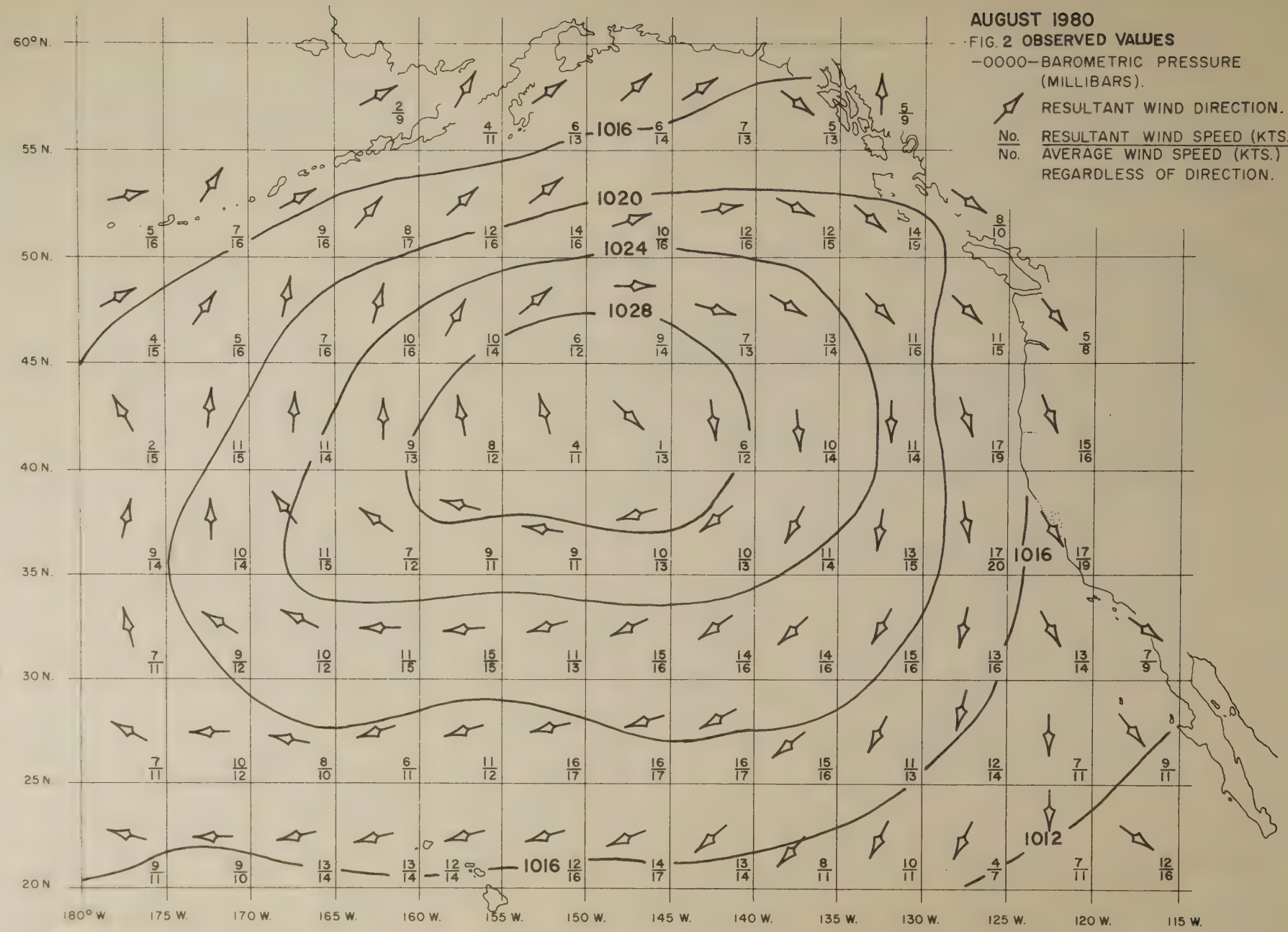
During August, SST's normally increase 1 to 2°C along the west coast of Baja California. Elsewhere north of the equator, warming is usually less than 1°C. One exception occurs in areas between 10°N and 20°N, where frequent tropical storms often cause decreases of 1 to 2°C along storm paths. Along the equator east of 110°W and in the Peru Current west of Peru, SST's usually decrease 1 to 2°C. During August and September the lowest SST's of the year are normally reached where coastal and equatorial upwelling are strongest.

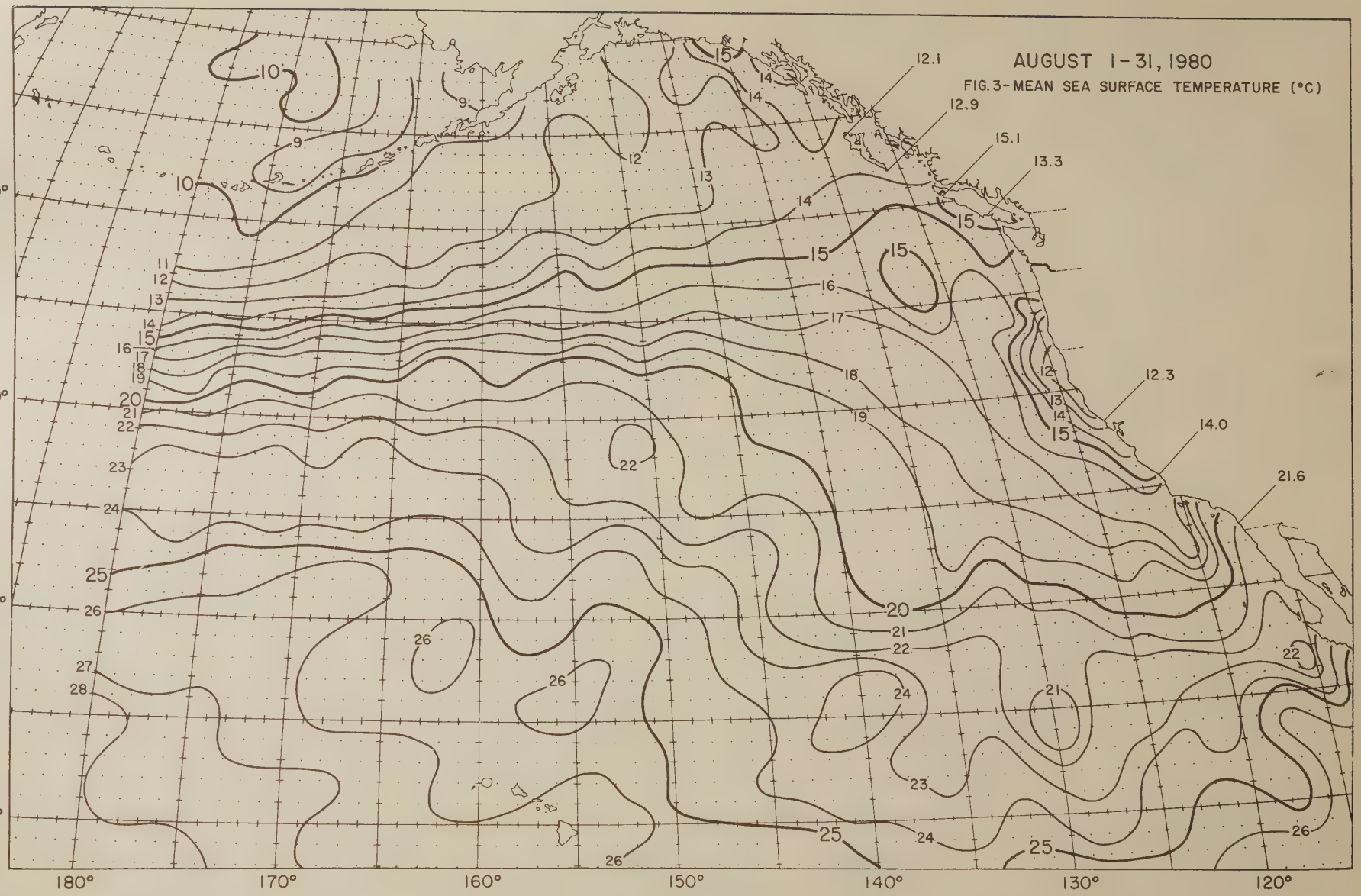
During 1980 SST's were more than 1°C above normal in several places west of Baja California. This was, in part, due to lighter than normal northeast trade winds most of the month. Three tropical storms formed in August between 10°N and 15°N, west of 105°W and moved northwest through the "local banks" fishing grounds south of Baja California. Two storms developed into hurricanes Howard and Isis during the first half of August near the Revilla Gigedo Islands. The seven tropical storms that developed during July and August 1980 moved northwest along similar paths and caused SST's to be more than 1°C below normal between 10°N and 20°N. Here cloud cover and heavy wind mixing was extensive around the storm centers (Figure 9). North of 20°N, trade winds were weakened by frequent tropical storm activity and the northward movement of the high pressure system (Figure 2). The band of above-normal SST's north of 20°N and along 5°N, were associated with greater-than-seasonal warming which occurred when surface winds and cloud cover were diminished before and after the passage of tropical storms.

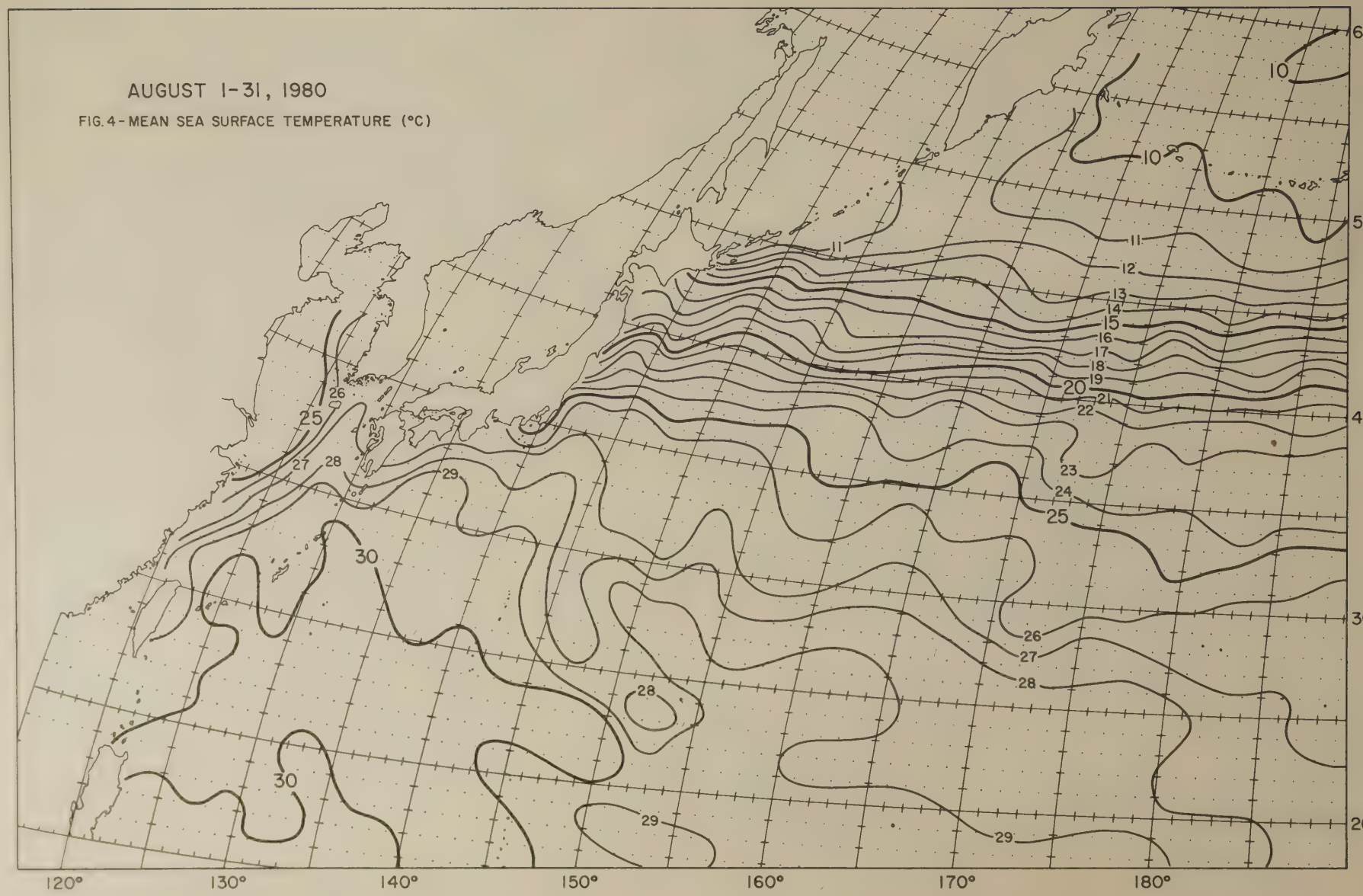
Along the entire equator east of 170°W from 3°N to 5°S, SST's were below normal. Two large areas with SST's more than 1° below normal developed this month along the equator west of 135°W and off the coast of South America centered along 85°W (Figure 9). The equatorial ocean front, characterized by a strong north-south SST gradient, was well developed east of 120°W between the equator and 3°N (Figure 8). West of the Gulf of Guayaquil (3°S), the ocean front was especially strong but oriented more north-south. Along the coast of Peru, SST's were apparently near- or slightly below-normal, based on some ship SST's. Most of the above-normal SST's in the southern hemisphere were in a band from 5°S to 15°S west of 110°W, where the southern high pressure system and lighter winds prevailed. On the eastern and equatorial boundaries of the southern hemisphere, high pressure center easterly winds were stronger and helped to intensify equatorial upwelling and surface wind mixing.

It appears likely that SST's will remain below normal along the equator and along the coast of Peru for the next 3 months. Along the coast of Ecuador and Columbia, SST's will probably remain slightly above normal, and the equatorial ocean front will remain strong near the equator between the Galapagos Islands and the Gulf of Guayaquil.


AUGUST 1961 - 1980
FIG. 1 OBSERVED MEAN VALUES
-0000- BAROMETRIC PRESSURE (MILLIBARS).
RESULTANT WIND DIRECTION.
No. RESULTANT WIND SPEED (KTS.)
No. AVERAGE WIND SPEED (KTS.) REGARDLESS OF DIRECTION.
1012
1016
1020
1024
1016
60° N.
55 N.
50 N.
45 N.
40 N.
35 N.
30 N.
25 N.
20 N.
180° W.
175 W.
170 W.
165 W.
160 W.
155 W.
150 W.
145 W.
140 W.
135 W.
130 W.
125 W.
120 W.
115 W.


AUGUST 1980
FIG. 2 OBSERVED VALUES
—0000— BAROMETRIC PRESSURE (MILLIBARS).
RESULTANT WIND DIRECTION.
No. RESULTANT WIND SPEED (KTS.)
No. AVERAGE WIND SPEED (KTS.) REGARDLESS OF DIRECTION.
60° N.
55 N.
50 N.
45 N.
40 N.
35 N.
30 N.
25 N.
20 N
180° W
175 W.
170 W.
165 W.
160 W.
155 W.
150 W.
145 W.
140 W.
135 W.
130 W.
125 W.
120 W.
115 W.
1016
1020
1024
1028
1016
1012
1016


AUGUST 1-31, 1980
FIG.3-MEAN SEA SURFACE TEMPERATURE (°C)
12.1
12.9
15.1
13.3
12.3
14.0
21.6
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°


AUGUST 1-31, 1980
FIG. 4 - MEAN SEA SURFACE TEMPERATURE (°C)
60°
50°
40°
30°
20°
120°
130°
140°
150°
160°
170°
180°
10
11
12
13
14
15
16
17
18
19
20
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23
24
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27
28
29
30

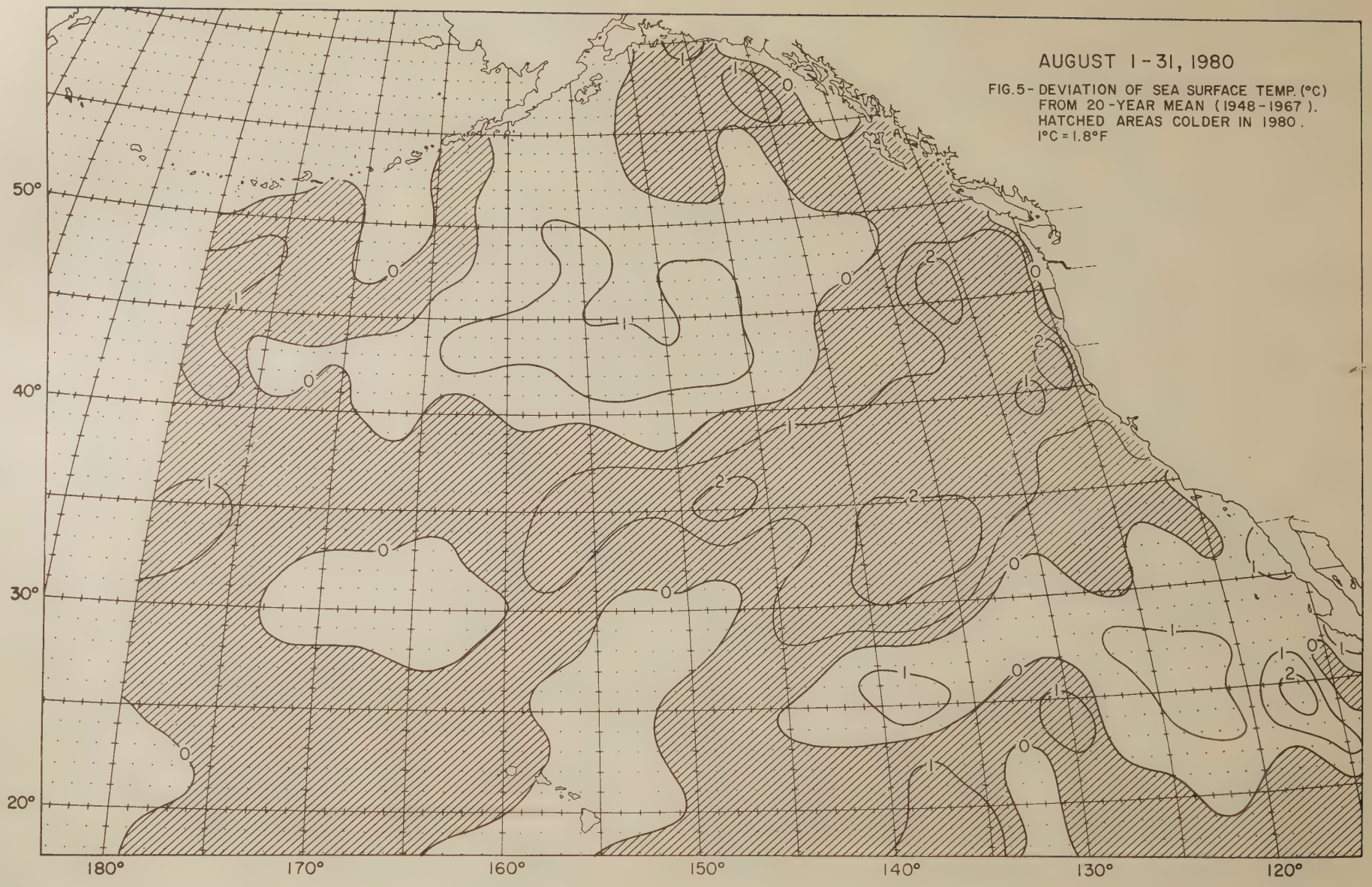
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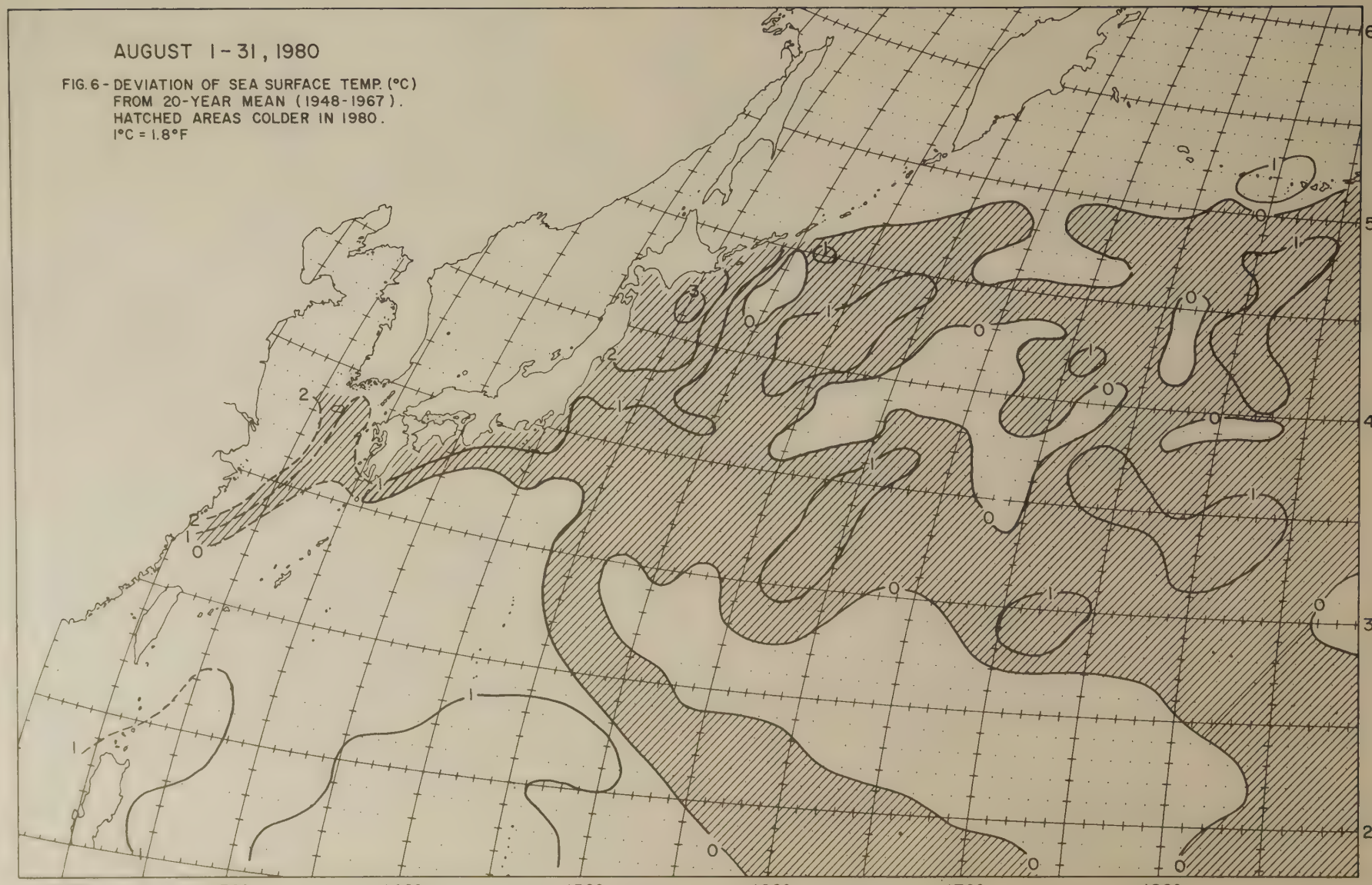
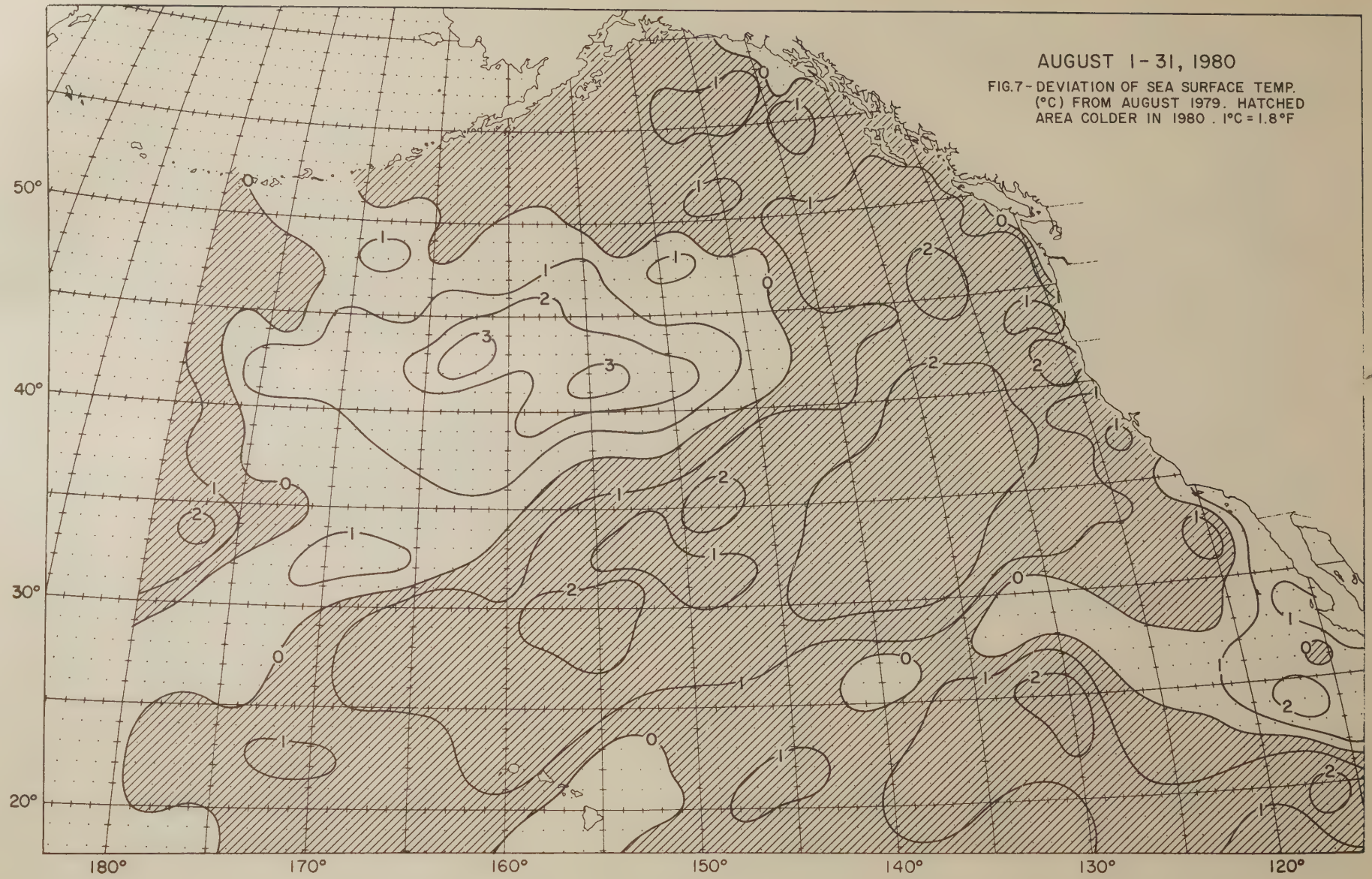
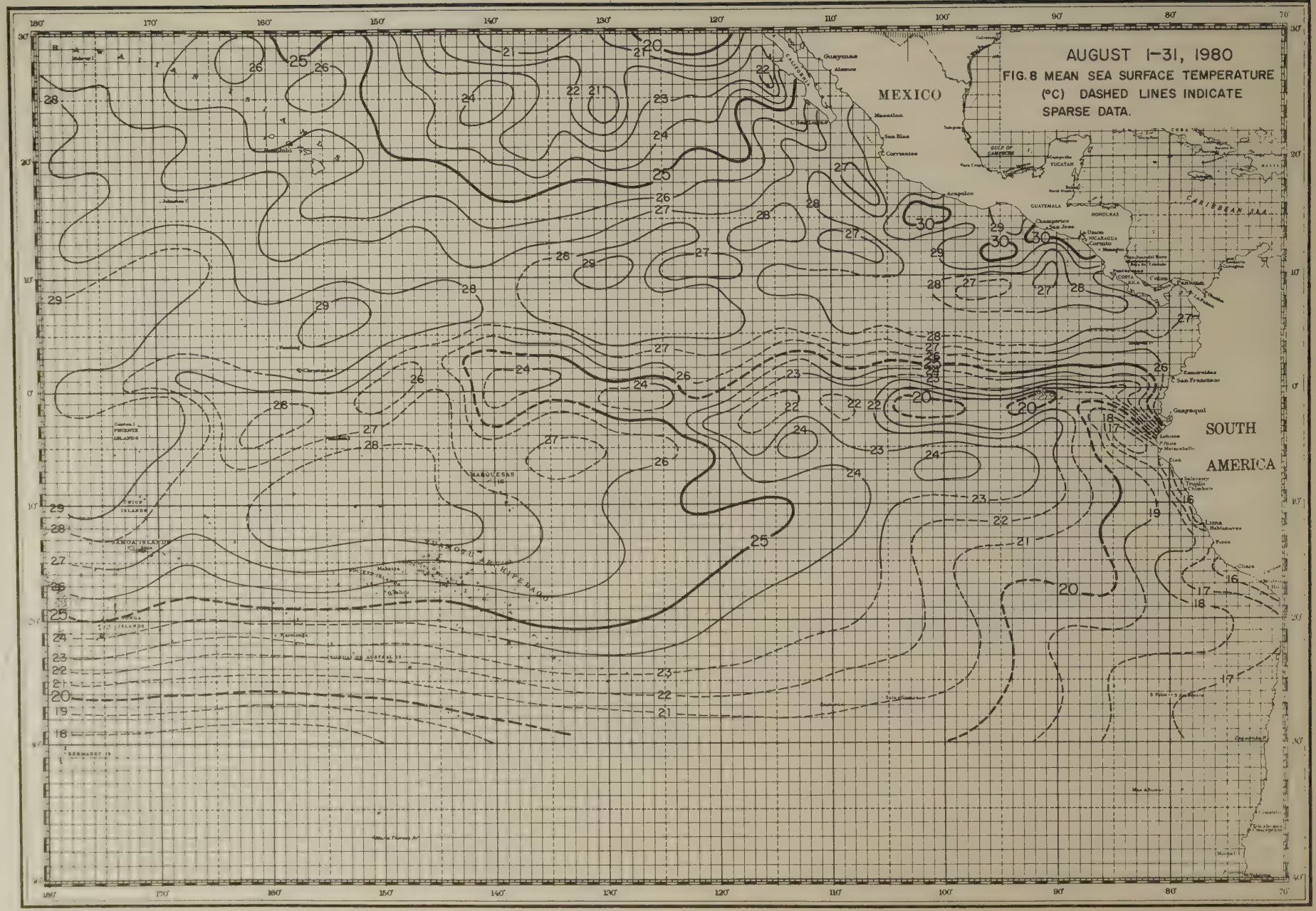
FIG.5- DEVIATION OF SEA SURFACE TEMP. (°C) FROM 20-YEAR MEAN (1948-1967). HATCHED AREAS COLDER IN 1980. 1°C = 1.8°F
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°


AUGUST 1-31, 1980
FIG. 6 - DEVIATION OF SEA SURFACE TEMP. (°C) FROM 20-YEAR MEAN (1948-1967). HATCHED AREAS COLDER IN 1980.
1°C = 1.8°F
60°
50°
40°
30°
20°
120°
130°
140°
150°
160°
170°
180°


AUGUST 1-31, 1980
FIG.7- DEVIATION OF SEA SURFACE TEMP. (°C) FROM AUGUST 1979. HATCHED AREA COLDER IN 1980 . 1°C = 1.8°F
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°


AUGUST 1-31, 1980
FIG. 8 MEAN SEA SURFACE TEMPERATURE (°C) DASHED LINES INDICATE SPARSE DATA.
MEXICO
SOUTH AMERICA
CARIBBEAN SEA
GUATEMALA
HONDURAS
NICARAGUA
COSTA RICA
PANAMA
YUCATAN
Acapulco
Guaymas
Manzanillo
San Blas
Corrientes
Champerico
San Jose
Corinto
Managua
Colon
Panama
Esmeraldas
San Francisco
Guayaquil
Salaverry
Trujillo
Chimbote
Lima
Callao
Pisco
Chala
Mazatlan
Tampico
Veracruz
Progreso
Belize
Puerto Barrios
Puerto Cortes
Tela
Ceiba
Limon
Puerto Armuelles
Buenaventura
Tumaco
Manta
Salinas
Puerto Montt
Valparaiso
Mar del Plata
Montevideo
Galveston
Havana
CUBA
GULF OF CAMPECHE
GULF OF CALIFORNIA
MARQUESAS
TUAMOTU ARCHIPELAGO
SAMOA ISLANDS
UNION ISLANDS
PHOENIX ISLANDS
FANNING ISLAND
CHRISTMAS I.
BERMUDES IS.
Makapu
Oahu
Honolulu
Kahului
Hilo
Kahuku
Kauai
Niihau
Johnston I.
Canton I.
Nukuhiva
Papeete
Rapa
Mangareva
Pitcairn I.
Easter I.
Juan Fernandez Is.
Rio de Janeiro
Santos
Buenos Aires
Bahia Blanca
Rawson
Comodoro Rivadavia
Rio Gallegos
Tierra del Fuego
Staten I.
Falkland Is.
Gough I.
Tristan da Cunha
Ascension I.
St. Helena
Trinidad
Tobago
Barbados
Curacao
Aruba
Maracaibo
La Guaira
Puerto Cabello
Cumana
Guanta
Carupano
Port of Spain
Georgetown
Paramaribo
Cayenne
Fortaleza
Recife
Salvador
Vitoria
Abrolhos
Trindade I.
Martin Vaz I.
Natal
Maceio
Aracaju
Belem
Manaus
Iquitos
Pucallpa
Callao
Arica
Iquique
Antofagasta
Caldera
Coquimbo
Valparaiso
Talcahuano
Puerto Montt
Chiloe I.
Juan Fernandez Is.
Easter I.
Pitcairn I.
Rapa
Mangareva
Papeete
Nukuhiva
Canton I.
Johnston I.
Kauai
Niihau
Kahuku
Honolulu
Kahului
Hilo
Oahu
Makapu
Bermudes Is.
Azores
Madeira
Canary Is.
Cape Verde Is.
Dakar
Monrovia
Freetown
Conakry
Bissau
Bathurst
Las Palmas
Tenerife
Casablanca
Tangier
Gibraltar
Malaga
Barcelona
Marseilles
Genoa
Naples
Palermo
Algiers
Oran
Tunis
Bizerte
Malta
Alexandria
Port Said
Haifa
Beirut
Istanbul
Piraeus
Athens
Salonika
Constanza
Odessa
Sevastopol
Yalta
Batumi
Poti
Sochi
Novorossiysk
Tuapse
Kerch
Feodosiya
Yevpatoriya
Sevastopol
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Batumi
Poti
Sochi
Novorossiysk
Tuapse
Kerch
Feodosiya
Yevpatoriya

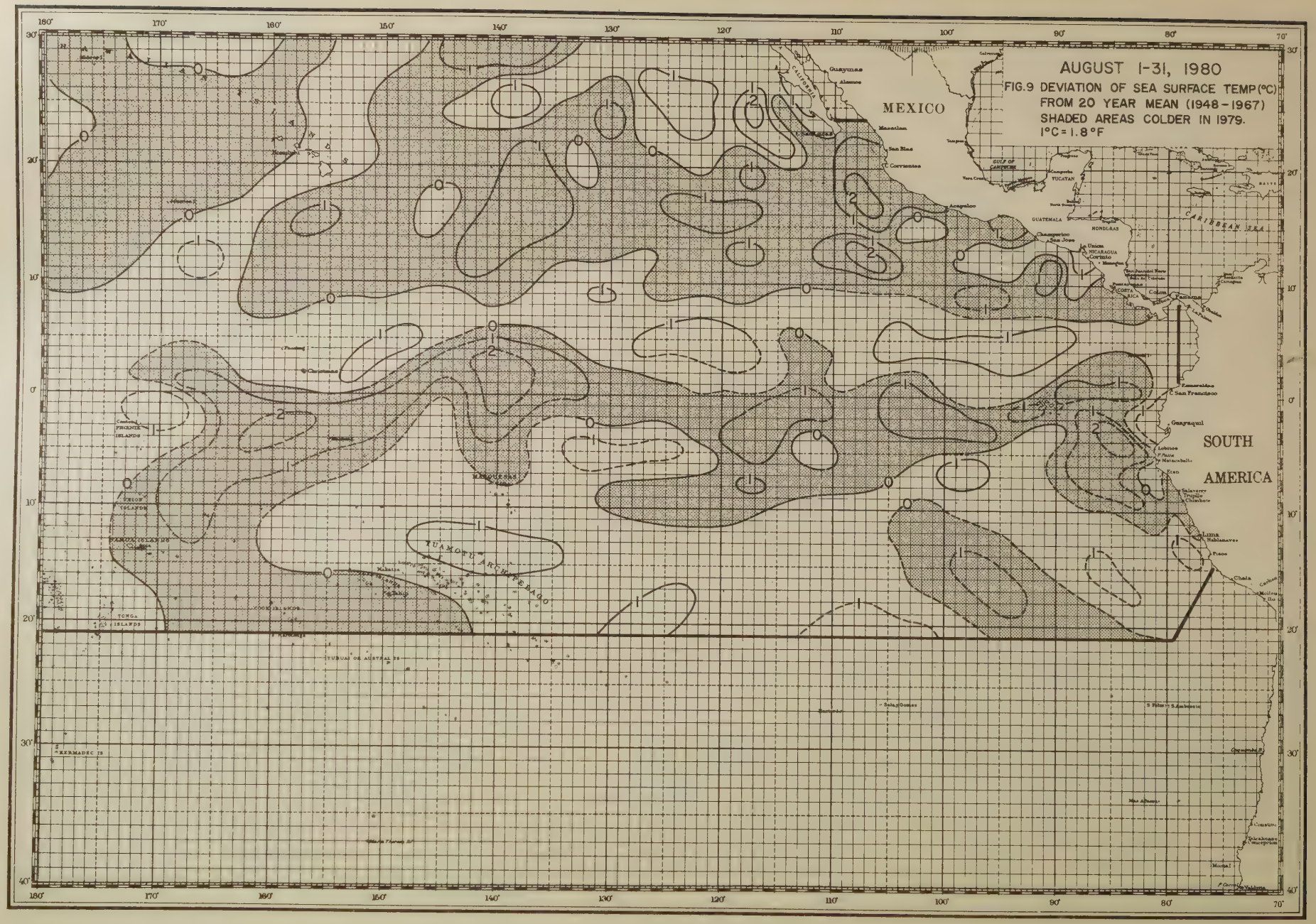
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FIG.9 DEVIATION OF SEA SURFACE TEMP(°C)
FROM 20 YEAR MEAN (1948-1967)
SHADED AREAS COLDER IN 1979.
1°C = 1.8 °F
MEXICO
SOUTH
AMERICA
CARIBBEAN SEA
GUATEMALA
HONDURAS
NICARAGUA
COSTA RICA
PANAMA
Guaymas
Mazatlan
San Blas
Corrientes
Acapulco
Champerico
San Jose
Corinto
Managua
Colon
Panama
Esmeraldas
San Francisco
Guayaquil
Salaverry
Trujillo
Chimbote
Lima
Callao
Pisco
Chala
Mollendo
Arica
Iquique
Antofagasta
Caldera
Coquimbo
Valparaiso
Talcahuano
Concepcion
Corral
Puerto Montt
Chiloe
Chonos Archipelago
Juan Fernandez Is
Easter Island
Salas y Gomez
Marquesas
Tuamotu Archipelago
Tubuai or Austral Is
Pitcairn
Gambier Is
Society Is
Tonga Is
Fiji Is
Samoa Is
Kermadec Is
Phoenix Islands
Line Islands
Tokelau Is
Ellice Is
Gilbert Is
Marshall Is
Caroline Is
Mariana Is
Volcano Is
Bonin Is
Ryukyu Is
Taiwan
Hong Kong
Manila
Mindanao
Celebes
Halmahera
Timor
Java
Sumatra
Malaya
Singapore
Borneo
Sarawak
Brunei
Philippines
Micronesia
Palau Is
Yap Is
Truk Is
Ponape Is
Kusaie Is
Marcus I
Wake I
Midway Is
Hawaiian Is
Johnston I
Palmyra I
Howland I
Baker I
Canton I
Enderbury I
Christmas I
Fanning I
Washington I
Jarvis I
Malden I
Starbuck I
Phoenix Is
Tokelau Is
Samoa Is
Tonga Is
Fiji Is
New Caledonia
New Hebrides
Solomon Is
Bismarck Archipelago
New Guinea
Australia
New Zealand
Tasmania
Norfolk I
Lord Howe I
Macquarie I
Auckland Is
Campbell I
Antipodes Is
Bounty Is
Chatham Is
Kermadec Is
Tubuai or Austral Is
Pitcairn
Gambier Is
Society Is
Tuamotu Archipelago
Marquesas
Easter Island
Juan Fernandez Is
Salas y Gomez
Chonos Archipelago
Corral
Talcahuano
Concepcion
Valparaiso
Coquimbo
Caldera
Antofagasta
Iquique
Arica
Mollendo
Chala
Callao
Lima
Pisco
Salaverry
Trujillo
Chimbote
Guayaquil
Esmeraldas
San Francisco
Colon
Panama
Puerto Montt
Chiloe
Corral
Talcahuano
Concepcion
Valparaiso
Coquimbo
Caldera
Antofagasta
Iquique
Arica
Mollendo
Chala
Callao
Lima
Pisco
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San Francisco
Colon
Panama
Puerto Montt
Chiloe

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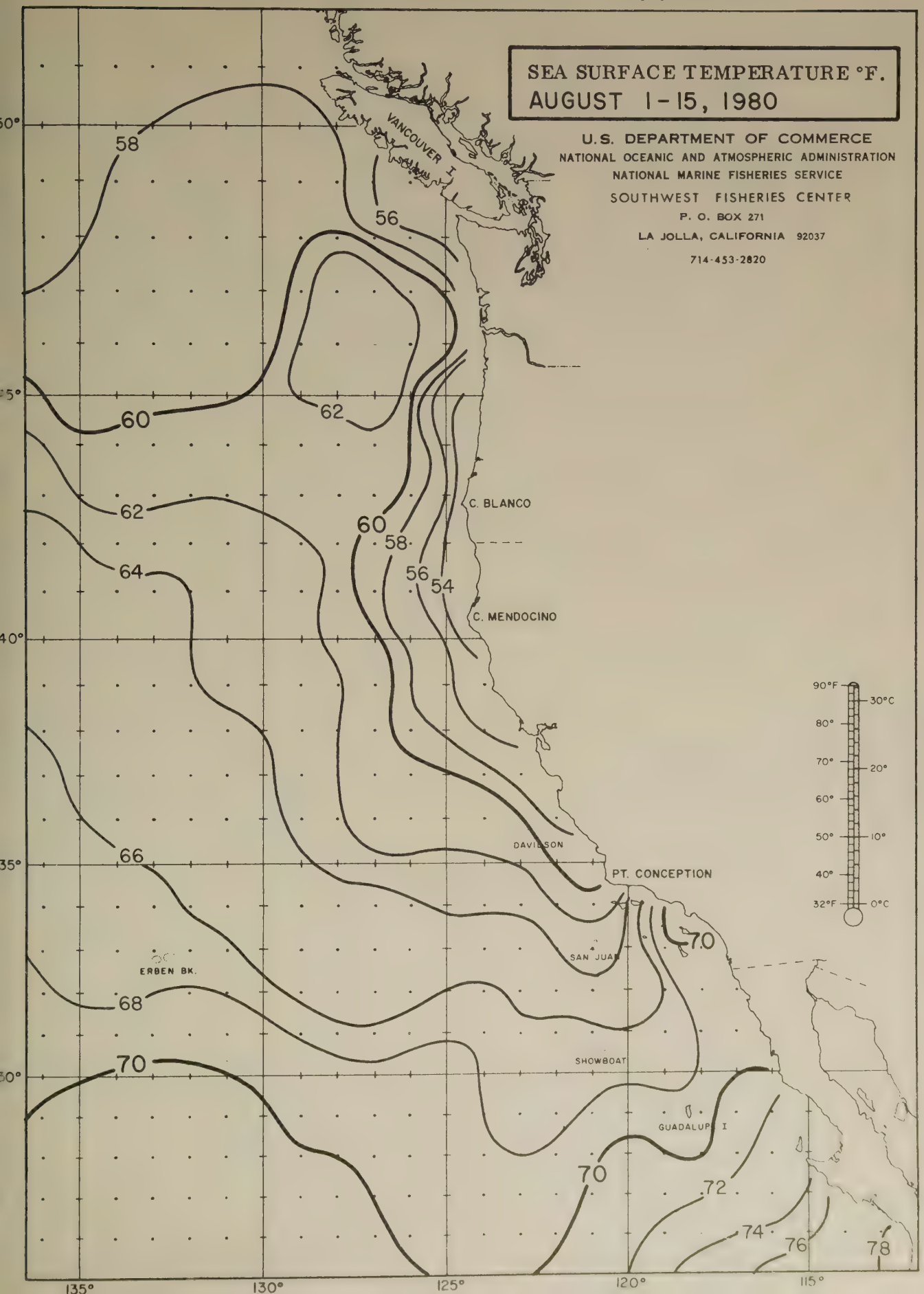

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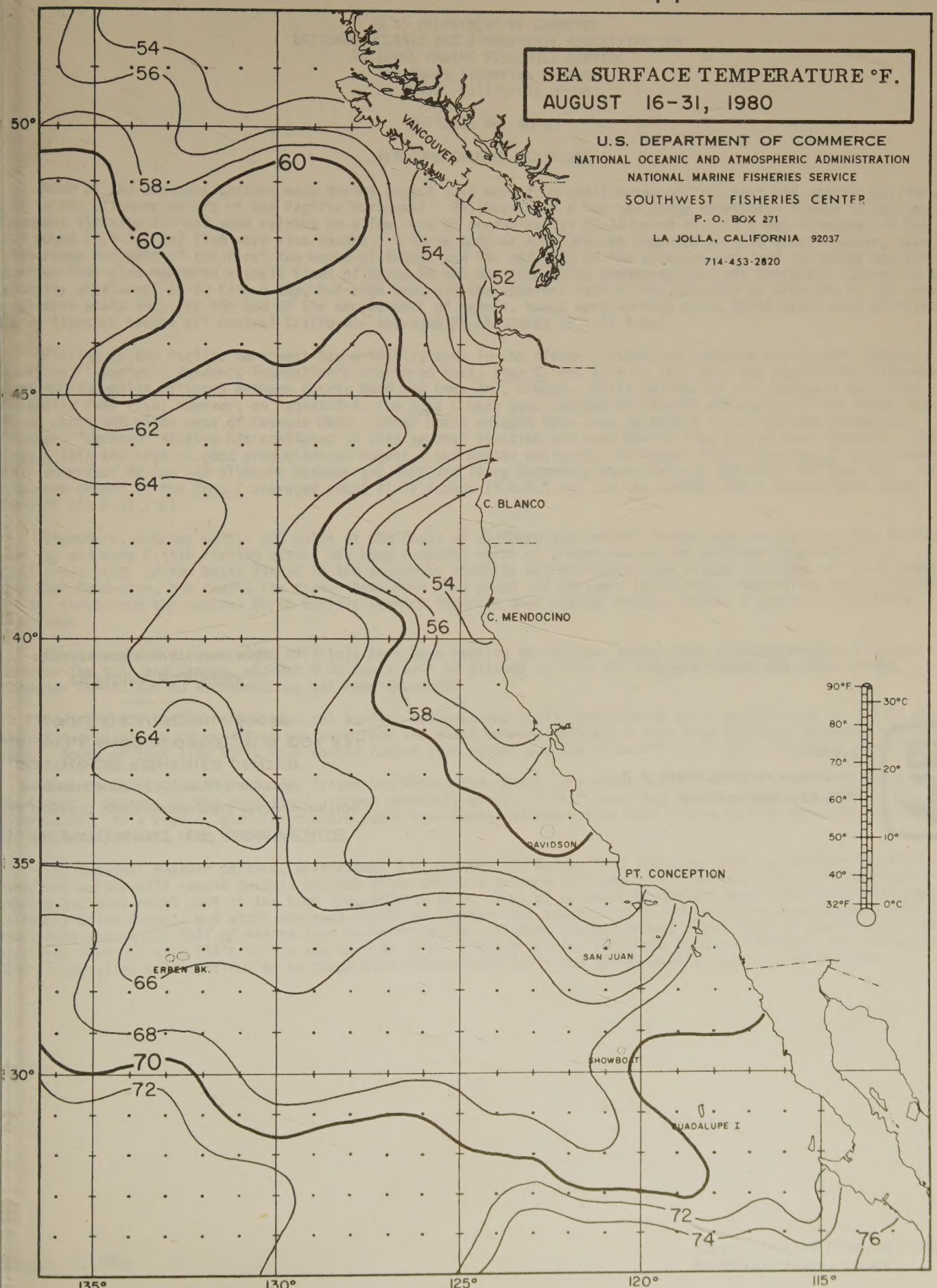

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NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL MARINE FISHERIES SERVICE
Southwest Fisheries Center
La Jolla, California 92038

Bulletin No. 80-5

ALBACORE CATCHES SCATTERED

Much of the albacore catches made during August 1-15 were from small areas off southern and central California and in the offshore waters of the Pacific Northwest. Baitboats and a few San Diego sportboats fished in the San Juan Seamount vicinity and had good catches on a few days on predominantly 20-30 pound (9.1-13.6 kg) albacore. A few 5-7 pound (2.3-3.2 kg) fish were also caught. A large body of albacore was reported in this area; however, seas have been rough for most of the first two weeks of August and the majority of the albacore remained far below the surface. Poor weather also hampered a small fleet of boats in the Davidson-Guide Seamounts area off Monterey. Scores in this vicinity were about 20-60 fish a day, but high seas and the apparent lack of any quantity of albacore in the area kept many boats out. By the end of the second week of August, boats were working about 30-40 miles west of Point Sur. Albacore caught off central California averaged 20-25 pounds (9.1-11.4 kg).

Fishing in the Pacific Northwest has primarily been in the offshore waters of northern and central Oregon. The American Fishermen's Research Foundation's chartered boat, Inez C, was also in this area and scouted for albacore from 480-700 miles offshore between Heceta Head and Coos Bay, Oregon. Daily catches by the chartered boat were generally 7-64 fish; however, on August 2-4, the Inez C made good catches of 156-229 albacore near the McNab Seamount about 480 miles west of Cascade Head. Other boats entered this area on August 4, but catches decreased. However, "scratch" fishing has continued in this general location and some 80-100 fish scores were recorded. The Inez C left the area of good production on August 4 and worked westward. On August 10-11, the Inez C again reported fair scores of 88 and 189 albacore between the Raff and Terry Seamounts approximately 700 miles off Coos Bay. All albacore caught by the Inez C averaged about 11-12 pounds (5.0-5.5 kg) and the surface water temperatures were 59-63°F (15.0-17.2°C).

Elsewhere, catches within 200 miles of the coast of northern and central Oregon were mostly less than 40 fish per day and very little fishing effort has been expended north of Oregon and in the southern Oregon-northern California area. A few boats fished in the seamounts vicinity off Washington and within 100 miles of Point Arena and Cape Mendocino, but caught few fish. Seas were also rough off northern California. Meanwhile, boats returning to the coast from the central North Pacific fishery reported good catches between 42-46° N latitude, 149-152°W longitude.

Canadian and U.S. Government officials have been meeting to discuss, among other albacore-related problems between the U.S. and Canada, whether U.S. boats will be allowed to fish for albacore within 200 miles of the Canadian coast; but no agreement has yet been announced.

During the first half of August sea surface temperatures (SST) continued to be 1° to 2°F (0.6° to 1.1°C) below normal over a wide band extending westward from the coast between 46°N and a line from Davidson Seamount to Erben Bank. South of this line SST's have warmed faster than normal and are 1° to 2°F (0.6° to 1.1°C) above normal.

Most of the SST's off Vancouver Island and Washington, which were above normal earlier, dropped to below normal in August. Because of the persistent, strong northerly winds, coastal upwelling has developed from 45°N to Point Conception. As a result, good temperature edges have formed offshore from Cape Blanco to Cape Mendocino and east of San Juan Seamount (see chart).

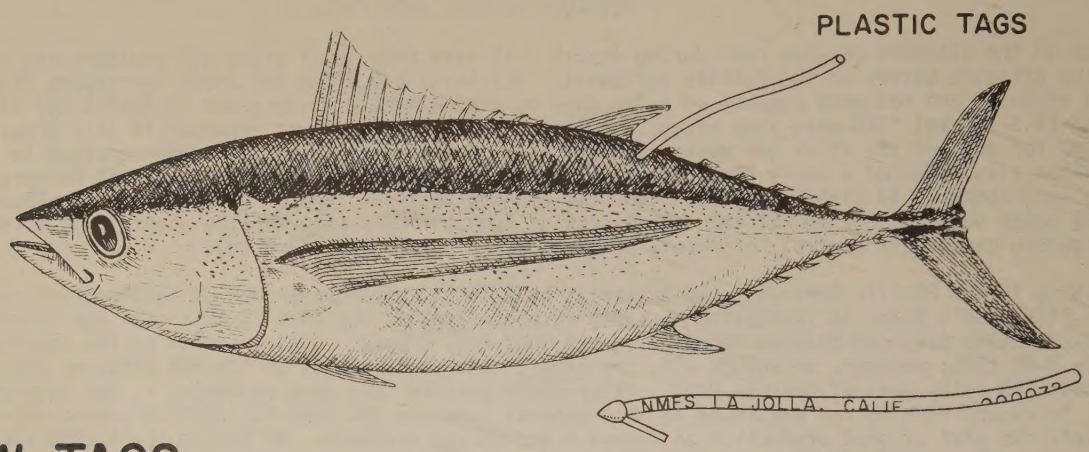
The National Weather Service, Washington, D.C. outlook for August 1980 indicates that the eastern Pacific high pressure center will remain several hundred miles offshore between 30°N and 35°N. Surface winds will continue to be strong and seas rough most of the time from 35°N to 45°N. West of northern Oregon and Washington SST's will remain slightly below normal, but winds and seas should be lighter than south of 45°N. Most of the storm centers will move northeast across the Gulf of Alaska into northern Canada. Fishing weather should remain fair to good south of the Davidson Seamount with SST's in the mid-to-high 60's. Fishing weather from Cape Blanco to Monterey Bay and westward 100 to 300 miles will continue to be rough with below normal SST's and strong northerlies most of the time.

August 15, 1980

Staff, Albacore Fisheries Program
R. Michael Laurs, Leader

$ REWARD $

FOR ALBACORE TUNA TAGS



YELLOW TAGS

THE NATIONAL MARINE FISHERIES SERVICE WILL PAY $ 2.00 FOR EACH YELLOW TAG RECOVERED. (NO NEED TO RETURN FISH)

RECORD:

- ▶ WHERE
- ▶ WHEN
- ▶ HOW

} *FISH WAS CAUGHT*

- ▶ LENGTH OF FISH (TIP OF LOWER JAW TO FORK OF TAIL)

FORWARD TO NMFS ADDRESS ON TAG

RED TAGS

THE NATIONAL MARINE FISHERIES SERVICE WILL PAY $ 50.00 FOR EACH RED TAG & FISH RETURNED. (FISH WITH TAG INTACT MUST BE RETURNE

RECORD:

- ▶ WHERE
- ▶ WHEN
- ▶ HOW

} *FISH WAS CAUGHT*

- ▶ LENGTH OF FISH (TIP OF LOWER JAW TO FORK OF TAIL)

NOTIFY NMFS P.O. BOX 271, LA JOLLA, CA. TEL. (714) 453-2820

THE AMERICAN FISHERMEN'S RESEARCH FOUNDATION WILL AWARD CASH PRIZES FOR YELLOW & RED TAG NUMBERS DRAWN IN AN ANNUAL LOTTERY.